

**EXPERIENCES WITH COOPERATIVE MODERATION OF A
USENET NEWSGROUP**

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Abstract: A unique moderated USENET newsgroup, *sci.med.aids*, was created on June 13, 1987 to host an electronic discussion of medical, social, ethical and political issues associated with AIDS. After 7 months of operation, *sci.med.aids* claims a worldwide readership of over 11,000 people. Unlike any other moderated USENET newsgroup, six physically-separated experts control *sci.med.aids* editorial policy through a democratic process. Moderation team members propose changes, debate, and vote through electronic mail.

Within the team, members take on distinct roles. A *chief moderator* handles most editorial tasks. *Expert technical contributors* may post technical articles directly, bypassing the overhead of moderation. One member posts a *Monthly AIDS Summary* to *sci.med.aids* and related USENET newsgroups.

This paper briefly reviews normal USENET moderation, presents the formation and current structure of the *sci.med.aids* team, analyzes problems encountered, and discusses the advantages and disadvantages of team moderation. The paper concludes with recommendations for others interested in forming team-moderated newsgroups, bulletin boards, or electronic magazines.

Team moderation seems best suited for high-volume, controversial topics, where no single individual can have panoramic expertise. While *sci.med.aids* began as an experiment and occasional problems still appear, its large readership and high-quality articles attest to its overwhelming success.

1 Introduction

USENET, a worldwide electronic communication network, serves over 200,000 computer users. It provides over 300 international, national, and local *newsgroups*, where discussions on designated topics are held. Some groups, called *moderated* newsgroups, provide information in a magazine-like format—article submissions are reviewed and edited by a *moderator*.

This paper discusses our experiences as moderators of a specific USENET newsgroup, *sci.med.aids*, and discusses its unique team moderation system. Originally an experiment to distribute an anticipated heavy workload among several individuals, team moderation has unexpectedly produced a higher quality information source. Team members generally agree that, despite some problems, team moderation has proved itself a successful strategy.

Our experiences can provide guidance to new groups attempting similar tasks, such as collaborative editing of electronic journals.

2 Profile of the USENET Network

USENET uses the *uucp* program [Sun86] as its basic transmission protocol. According to statistics published by the Network Measurement Project [Reid87a], approximately 8300 worldwide sites host USENET newsgroups. These sites range in size from large mainframes to personal computers.

Todino and Reilly summarize the newsgroup mechanism that exists on these machines:

The public domain netnews software includes programs that allow users to read and post news messages to the net. Messages are transmitted across the net by what has been described as a 'flooding routing algorithm.' Each site that receives news forwards the news to one or more other sites; key backbone sites forward messages to each other and to multiple other sites in order to speed transmission. [Todi86, page 52]

The USENET system categorizes news messages into subject areas called newsgroups. Most sites in the United States and Canada carry the 296 network-wide newsgroups [Reid87b]. European and other foreign sites carry fewer. Some machines carry additional state, city, and organizational newsgroups. For example, there are newsgroups that are available to all USENET sites in Austin and newsgroups that are available only to employees of MCC.

A site need not subscribe to all network-wide groups. Since greater USENET traffic often means greater transmission cost, many sites carefully select the groups they receive and pass on to other sites. In addition, not all users at those sites read USENET articles. The Network Measurement Project [Reid87a] estimates that 22% of the users on networked machines are netreaders. This is approximately 236,000 readers. However, no USENET participants read all newsgroups.

With this background and the statistics available from the Network Measurement Project, we can measure the popularity of a newsgroup. Higher-quality articles in a newsgroup usually increase its readership. As we note in the conclusions, *sci.med.aids* has shown success in this respect.

We use the term *signal-to-noise ratio* to describe the quality of articles in a newsgroup. If a newsgroup has a high signal-to-noise ratio, readers learn something from most articles. If a newsgroup has a low signal-to-noise ratio, readers usually don't glean useful information from articles in that group and skip most articles or unsubscribe from the group.

Noise usually reflects ignorance or carelessness on the author's part. Such articles may contain erroneous information or may repeat previous discussion.

2.1 Moderation

Most newsgroups are *unmoderated*; any USENET reader may post an article to an unmoderated group—it will begin propagating through the USENET system, appearing in the newsgroup as it arrives at each site. Despite the huge community of USENET participants, most newsgroups are unmoderated. A published set of rules called “net etiquette,” made available to all readers, helps prevent the posting of improper or offensive material. Enforcement of these rules occurs through peer pressure and a dedicated core of volunteers.

Other newsgroups are *moderated*; a reader may send an article to a moderated group, but it will not immediately appear in the newsgroup. Instead, the USENET software forwards the article to a *moderator* who may make editorial changes, format the article in some uniform style, return the article to the author for changes, wholly reject the article, or post it. A moderator’s job resembles that of a professional journal editor, except that moderators work with extremely short times between “issues” (often one or two days) and they must contend with a greater number of articles.

Articles appearing in moderated newsgroups generally have a higher signal-to-noise ratio than postings in unmoderated groups. Two factors produce this result: (1) the moderator rejects inappropriate articles and edits grammatically incorrect articles before posting; (2) readers of a moderated newsgroup submit carefully-worded articles, to reduce the risk of being rejected.

This tightly-controlled structure is relatively uncommon in USENET. Moderated newsgroups number only 59 out of the 296 total network-wide newsgroups, slightly less than 20%. Since moderation invariably improves a newsgroup’s signal-to-noise ratio, new USENET readers commonly wonder why all groups aren’t moderated.

Moderation has one major disadvantage: it requires one person to read, edit, and post all articles in the newsgroup. Popular moderated newsgroups typically see 60 or more articles per month. The moderator works hard, endures much criticism from rejected authors and readers who dislike standing editorial policy, and usually garners no recognition or compensation. Under these circumstances, most USENET newsgroups remain unmoderated, simply because no one volunteers.

2.2 USENET Hierarchy

Newsgroups fall into 5 categories: *comp*, dealing directly with computers, their architectures, and the programs that run on them; *soc*, dealing with social and societal issues; *news*, dealing with the operation and maintenance of the USENET structure; *talk*, dealing with verbose discussions about topics like politics and abortion; and *sci*, dealing with the sciences such as astronomy and medicine.

Each category is subdivided to allow more specific discussions to be grouped under general headings. For example, the *comp* category has a *sys* subdivision which encapsulates all the newsgroups on computer systems. The AIDS newsgroup was classified under the *sci.med* (science of medicine) category.

3 The *Sci.med.aids* Newsgroup

Sci.med.aids was created amid controversy. Articles about AIDS, many promulgating incorrect medical data, prejudicial opinions or inflammatory remarks, had been appearing in a number of unmoderated newsgroups since the AIDS crisis began. To correct misconceptions about AIDS, Craig Werner, a medical student at Albert Einstein Medical College, began posting a monthly AIDS information article urging individuals to post AIDS commentary to the medical newsgroup (*sci.med*). Those pleas went largely unheeded, particularly in the gay-oriented newsgroup (*soc.motss*) and the single-adults newsgroup (*soc.singles*).

In 1986, Daniel Greening called for the creation of a new newsgroup whose sole topic would be AIDS. He argued that political issues surrounding AIDS were generally discussed in the gay newsgroup and medical issues in the medical newsgroup—to read both, one would have to wade through much irrelevant material. But it was not until June 13, 1987, when the number of AIDS related articles grew unwieldy, that *sci.med.aids* was created.

As a condition for its creation, USENET backbone sites insisted on moderation. They feared that, unmoderated, *sci.med.aids* would generate a very low signal-to-noise ratio due to its controversial subject matter. Greening, a Ph.D. student at UCLA, felt a commitment to moderate a high-volume newsgroup would impede his research work. An experimental compromise was struck: *sci.med.aids* would be moderated by a team.

3.1 The Moderation Team

It was hoped that *sci.med.aids* would accomplish several goals:

- Focus discussion on the medical, educational, sociological and political aspects of the AIDS crisis in a single newsgroup;
- Provide timely, accurate information on AIDS research, and the political activities surrounding AIDS;
- Provide a forum for both highly-technical readers and the general USENET population;
- Eliminate inflammatory material and prejudiced articles on AIDS and people with AIDS;
- Eliminate or identify articles discussing medically dubious “AIDS cures”;
- Encourage people in the USENET community to volunteer to work with AIDS patients;
- Foster better overall understanding of the AIDS crisis by bringing experts in different fields together;
- Provide a forum for persons with AIDS and their associates to exchange experiences, feelings and useful information.

Selection of team members followed from these goals. In forming the initial editorial board, several concerns appeared:

- AIDS generates many emotional issues: confusion about AIDS transmission, demands for quarantine, fear of discrimination, etc. An “editorial board” representing several different perspectives would edit submissions fairly and compassionately.
- AIDS is a highly complex topic and in some areas understanding requires specialized training. In the medical and political arenas, new discoveries and concerns arise with little warning. Experts in medicine, biology, and politics could answer most questions and adequately address some fallacious AIDS cures that had appeared in USENET.
- The gay community has provided social-support for people with AIDS and effective AIDS education since the beginning of the AIDS crisis. A gay representative on the moderator team would provide an important viewpoint.
- Discrimination affects many people with AIDS and people who work with AIDS.

As a result, some authors wish to contribute anonymously. Moderators can provide anonymity by posting articles without identifying the original author; when readers wish to communicate with an anonymous poster, they send their mail to the moderator, who forwards it. For this to work, moderators must engender trust.

Reflecting these concerns, the first team was composed of 4 moderators: Tom Lincoln, Informatics Director of the USC Medical Center, Craig Werner, MD/Ph.D. candidate at Albert Einstein College of Medicine, Will Doherty, Sun Microsystems technical writer and gay activist, and Daniel Greening, member of the UCLA AIDS Task Force and former student body president of the University of California.

As the newsgroup grew more popular, the editorial burden expanded. Members were added to the team to help reflect new technical concerns and to share the increasing work. These later additions included Steve Dyer, founder of the gay-oriented newsgroup *soc.motss*, Sean Eddy, molecular biology graduate student at the University of Colorado, Boulder, and Alan Wexelblat, software researcher at MCC, ethicist, and free-lance writer.

4 Operating Procedures

Moderator team members typically communicate via electronic mail. Communication paths, primarily *uucp* and Internet, are fairly reliable, but not fast. Delay times can range from a few seconds to a few days. Nonetheless, we set policy and moderate the group cooperatively. However, communication delays have forced us to streamline the process of editing articles.

With several moderators editing the same text, each with slightly different views on editorial policies, the moderation task could be even *harder* than with a single moderator. To avoid this problem, *sci.med.aids* editorial policies had to clearly delineate acceptable and unacceptable articles.

Even with clear editorial policies, several moderators editing the same material would cause unnecessary conflict. As a result, we divided routine tasks among different moderators.

4.1 Editorial Policies

Sci.med.aids moderators receive many controversial articles, including fallacious treatment claims, abusive commentary, and opinions based on questionable medical or sociological facts. Without a clear-cut editorial policy, we would have endured many arguments with rejected authors. Our policies, developed after consultation with readers, follow:

Sci.med.aids prints submissions based on these criteria:

- Medical and research claims must be accompanied by references to the popular press (that is, major newspaper, magazines, and so forth) or scientific press (*Science*, *Nature*, *Lancet*, *Scientific American*, *Cell*, *Brain Research*, and the like).

We require references for unconventional medical claims because some therapies carry with them potential danger. Some treatment claims are fallacious. Without this policy, *sci.med.aids* would have printed several dangerous and undocumented therapies by now.

Some readers argue for a *caveat emptor* policy. We feel that articles espousing undocumented claims endanger people with AIDS and damage the credibility of the newsgroup.

- Political, sociological opinion and analysis articles are acceptable.

Moderators continue to debate the interpretation, and even the existence, of this particular policy. However, in the past we have printed articles holding both popular and unpopular opinions on topics like "Quarantining HIV Positives" or "Reagan Appointed Unqualified People to the AIDS Task Force."

- No derogatory personal attacks are allowed. Attribution of mental state to other readers is not allowed (such as "He is homophobic"). We allow posters considerable latitude in developing their arguments and we rarely enforce this rule.
- No expletives are allowed. Although some readers have argued for their use, we feel that reasoned, emphatic debate can be carried out without recourse to expletives.

Moderators will often correct spelling or grammatical errors. If minor personal attacks or expletives appear in an article, we sometimes simply delete them and post the edited article. A moderator may occasionally append commentary to articles which require clarification.

4.2 Moderator Team Operation

Among the team, a single "chief moderator" performs cosmetic editing and posts articles which clearly fit within the editorial policy. When the chief moderator encounters a questionable posting, the article is sent to the other members of the moderator team. Usually the team arrives at a consensus. We either post the article, or reject it. When we reject an article, we send a message to the author, telling him or her why it was rejected, and give pointers about how it could be made acceptable.

The position of chief moderator is rotated on a regular basis. We now use a two month schedule, cycling among most team members. The single exception, Craig Werner, serves in an advisory capacity; he votes on policy questions and makes suggestions, but does not perform chief-moderator tasks.

We designate some moderators as *expert technical contributors*. These people may post articles in their field directly, bypassing the normal moderation system. With long network delays, we find this streamlines the process of answering questions about AIDS, and posting new technical material. Moderators may submit articles outside their areas of expertise, but these must be approved and posted by another member of the team.

Werner edits and posts a *Monthly AIDS Summary* to several USENET newsgroups. A more extensive summary appears in *sci.med.aids*, with greater technical detail. This summary extracts data on AIDS from the Centers for Disease Control's monthly *Morbidity and Mortality* report and combines it with information on the AIDS virus and contact information for related organizations.

5 Experiences With Team Moderation

Sci.med.aids has been operating under the team moderation scheme for more than 7 months. In that time, we have encountered some temporary problems, but overall we are quite happy with the result. In this section, we discuss specific effects of the moderation system on the newsgroup contents, and on the team members themselves.

5.1 Improved Information Quality

Before the creation of *sci.med.aids*, USENET readers occasionally posted fallacious "cure claims" to *soc.motss*, *sci.med*, and *soc.singles*.

Sci.med.aids moderators have received several submissions advocating potentially harmful AIDS treatments, which were not backed by published research. The presence of an experienced physician helped prevent the posting of a potentially fatal "treatment." While one disgruntled author posted

an undocumented claim (on the use of ozone blood transfusions) to the unmoderated *soc.motss* newsgroup, for the most part *sci.med.aids* has prevented publication of undocumented AIDS claims in USENET.

Many uninformed individuals have misconceptions about the transmission of AIDS through mosquitoes, swimming pools, etc. These have been greatly dispelled through regular, in-depth postings on the mechanisms of AIDS transmission and the latest research findings in these areas.

Because *sci.med.aids* is edited by a team of experts and now has a good reputation, we have received several long, original, technical submissions on subjects including the DNA makeup of AIDS, the low probability of AIDS transmission through oral sex, the mechanisms of infectious-agent transmission through mosquitoes, and the demographics of AIDS. Summaries of recently published results on new AIDS treatments, AIDS risks, and pending AIDS-related legislation have also appeared.

In general, the quality of the information available has increased significantly. We attribute this to the efforts of the *sci.med.aids* moderation team and to the spirit of cooperation in our readers.

5.2 Bringing AIDS Workers Together

Although it is impossible to directly measure the level of interaction brought about by *sci.med.aids*, we have some anecdotal evidence. We have received private mail from readers who were encouraged to join volunteer AIDS organizations. Readers have also reported back to us the results of private conversations between themselves and other *sci.med.aids* readers, sometimes thanking us for putting them in touch. Many electronic friendships have grown out of the group, including our own; although the authors of this paper have spoken by phone, we have never met. We cowrote this paper via electronic mail.

Other readers have told us that printed copies of *sci.med.aids* articles are often circulated to groups of interested AIDS workers who do not have access to the net. Many readers have written to thank us for bringing to their attention AIDS-related news stories that would have escaped their notice.

We attribute this success to the high quality of the *sci.med.aids* information and to our international distribution. Information published in Boston, for example, is quickly relayed to interested parties all over the net.

5.3 Reduced Individual Moderator Workload

Moderation of a newsgroup involves considerable editorial work. The problem is compounded by the fact that we are dealing with a contentious subject. Persons whose articles are rejected are often upset and the chief moderator usually receives any complaints. When the moderation team was small and the idea of a moderated AIDS forum was not well-accepted abusive complaints were common. The first few chief moderators experienced tremendous frustration and became burned out.

We did not establish a fixed rotation scheme initially. Instead, we waited until the chief moderator requested that someone else take over the job. Having more moderators on the team means that the chief moderator duties can be rotated more frequently; this means that each of us is responsible for shorter stretches. Currently we change chief moderators every two months. This seems to have eliminated burn out problems.

With experience and trust, *sci.med.aids* participants have become less argumentative. Chief moderator duties now take about 20 minutes per day, on average, whereas in July 1987 they took over an hour per day.

5.4 Increased Total Moderator Workload

Naturally, larger teams introduce inefficiencies of their own—communication delays increase and consensus becomes more difficult to achieve. However, our experiences indicate that the advantages outweigh the drawbacks. It is our opinion that future groups would do well to have larger teams of 5–10 members for controversial topics and use smaller, more efficient teams of 3–5 members for simpler subject areas.

5.5 Problems with Internal Arguments

As with any group of people working together, we encounter dissent. In November, 1987, we lost a team member who felt he was not getting enough support. In addition, protracted arguments damaged our *esprit de corps*.

The nature of our communication—electronic mail—exacerbated these problems in two ways. First, it slowed communication unequally. As a result, some team members felt excluded from discussion and rapidly-concluded decisions. Other team members feel they were being ignored, since they had no way to know that their mail was still in transit to some team members.

Second, the well-known effects of electronic communication [Spro83] come into play—people will send messages electronically they wouldn't say face-to-face. Under conditions of slow communication and no immediate feedback, readers can easily misinterpret electronic mail.

Faster and more reliable communication systems would help us avoid these problems. It would also help to know when mail arrived at its destination and when it was read. For now, we send our phone numbers with potentially-sensitive electronic mail messages. This allows an offended or excluded moderator to communicate quickly with the rest of the group. No recent controversies have arisen in which we could test this scheme. In the case of our moderator resignation, the solution came too late.

6 Current Status and Conclusions

In the first few months, *sci.med.aids* moderators argued loudly over editorial policy and contested submissions. More recently, editorial policy has stabilized. Most of the team members have held the chief moderator position, and have discovered how time-consuming it is. As a result, internal argument has decreased significantly. Our accumulated experience, our recognition of the limits of electronic communication, and our growing mutual trust have all contributed to team harmony.

Worldwide, approximately 11,000 readers subscribe to *sci.med.aids*. About 92% of the 8300 USENET systems carry the group. In sheer popularity, *sci.med.aids* ranks 52nd among the 296 network-wide newsgroups [all statistics from Reid87b]. For a newsgroup with a seemingly-limited audience, such popularity is surprising.

The group has hosted informative discussions on a wide variety of topics, including prophylactic measures, viral lifecycles, the ethics of quarantine, and the psychological impact on AIDS survivors. Distribution of *sci.med.aids* has gone beyond USENET—printed copies of our articles have been shelved in hospital libraries and distributed among AIDS researchers and social workers.

We have become acquainted electronically with many readers. Among them are people with AIDS, people with positive HIV antibody tests, medical professionals, and AIDS educators. Their active use of the *sci.med.aids* indicates how successful the group has become.

In addition, the team moderation idea seems to be catching on. In November, 1987, a second group—*comp.binaries.amiga*, which distributes binary forms of programs for Amiga computers—began using cooperative moderation. In this case, a team of three has taken over an estab-

lished newsgroup formerly run by one moderator. We look forward to seeing how they manage with a less contentious and more uniform topic.

By all measures, *sci.med.aids* has succeeded under team moderation. We believe cooperative moderation lends itself to controversial, high-volume newsgroups—such as *sci.med.aids*. We believe our experiences and policies can assist those contemplating similar tasks, such as editing electronic journals and coordinating electronic bulletin boards.

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